perspective are €5,325 (±9588), €18,045€ (±34487) and €41,716 (±35211) at mild, moderate and severe stages respectively in France; €3,125 (±4319), €8,457 (±18374) and €5,069 (±11747) in Italy. Associated EQ-5D utilities are respectively 0.79 (±0.18), 0.39 (±0.37), –0.11 (±0.3) in France; 0.59 (±0.44), 0.39 (±0.42), 0.25 (±0.44) in Italy. The primary cost driver is productivity loss. In France, hospitalization and nursing home costs are the main components of direct costs. For more severely affected patients, medical resource utilization diminishes while caregiver involvement increases significantly (the shift is greater in Italy than France). Physical, mental and social HRQoL domains are all seriously affected. **CONCLUSIONS:** Euro-HDB is the first study to comprehensively assess the cost and HRQOL burden of HD. The 1:5 cost ratio (Italy : France) is consistent across most of the cost items, suggesting that differences in health care systems, access to health care and cultural attitudes towards caring for patients at home have a large impact on a country's overall costs. Results suggest that HD has greater impact on HRQOL than Parkinson's disease and Alzheimer's disease.

PND13

A PROSPECTIVE STUDY OF THE FINANCIAL COSTS OF MULTIPLE SCLEROSIS AT DIFFERENT STAGES OF THE ILLNESS IN IRAN

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The economic burden of Multiple Sclerosis (MS) on society and the individuals concerned is not known. Documenting such costs is essential for several reasons: costs of illness is a key factor of optimal disease management policies, knowledge of cost is useful for allocating research and development. The aim of our study as the first pharmacoeconomic investigation in Iran was to estimate the costs of multiple sclerosis according to severity of disease. Total, direct and indirect costs were compared in 160 patients divided into three groups categorized by disease severity: stage I Expanded Disability Status Scale (EDSS < 2.5), stage II (EDSS 3–4.5) and stage III (EDSS > 5). The majority of these patients (94%) developed relapsing- remitting MS. a minority of the patients (0.2–4%) developed secondary progressive and primary progressive MS. Cost evaluation was performed from the societal perspective and covered the one-year period. The study was carried out at the Division of Neurology at Ghaem Hospital and MS association in Mashhad in northeast of Iran and was approved by the local ethics committee. The mean total cost/patient for one year was estimated at $27,095, $27,997and $31,662 for stage I, II and III, respectively. Both direct and indirect costs increased with MS progression. For indirect cost the main item was productivity loss. The mean extra medicine (treatments for MS symptoms and adverse effects of medications) cost/patient for one year was calculated at $19,036. This study confirms that MS represents a high economic burden to patients and society, with direct costs greatly exceeding indirect costs. As costs increase with disease progression, treatment efforts should focus on patients in the early stages of MS. Disease support system that monitors a variety of common progressive signs for the MS individuals is a key element of a management program as well.

PND14

SOCIO-ECONOMIC ASPECTS OF TESTING FOR NEUTRALIZING ANTIBODIES IN MS PATIENTS ON INTERFERON BETA TREATMENT IN AUSTRIA: A COST OF ILLNESS STUDY

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OBJECTIVES: According to EU-guidelines testing all patients on interferon-beta (IFNb) for presence of neutralizing antibodies (NAB) is recommended irrespective of clinical course and stop IFNb or switch to alternatives in patients who developed persistent NAB; based on the fact that development in persistently NAB-positive patients equals that of placebo-treated patients. Economic impact of NAB-testing in MS-patients has not been explored yet. **METHODS:** This analysis estimated the economic impact of NAB-testing versus not testing during IFNb treatment in MS-patients (n = 3590) on Austria's health care system. a cost of illness model (decision tree combined with an integrated Markov model, time horizon 5 years), based on the cohort of IFNb-treated patients was performed. Two alternatives were compared: Cost-effectiveness of NAB-testing versus no NAB-testing. The NAB-testing arm allowed switching to alternative therapies whereas no-NAB-testing did not. Direct costs comprised all treatment-costs of symptoms due to MS. Indirect costs were not included. All costs represent data from 2010 (discounted at 5%p.a). Clinical data and resource use were determined by literature/experts. Efficacy assessment was based on the outcome measure "relapses avoided." **RESULTS:** Total discounted costs for all Austrian MS-patients on IFNb-therapy (incl. testing) from a health care system's perspective amount to €187,764,180 for 5 years. Total costs for all MS-patients without testing amount to €176,331,610. The difference of costs between tested patients, and therefore switching, and not tested patients values €11,432,570. Considering all IFNb-treated patients and a time horizon of 5 years 1400 relapses can be avoided. Testing for NAB leads to costs per relapse avoided of €24,383p.a. versus €27,569p.a. when no tests are done resulting in a difference of €3,186 per patient in favour of NAB-testing. **CONCLUSIONS:** General NAB-testing in MS-patients on IFNb-therapy is reasonable and cost-effective. Patients switching to effective and more expensive alternatives do not account for higher health care costs. Furthermore, less relapses increase QoL.

PND15

PATIENT CHARACTERISTICS AND CHARGES ASSOCIATED WITH EMERGENCY DEPARTMENT VISITS AMONG PATIENTS WITH A DIAGNOSIS OF RESTLESS LEGS SYNDROME

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OBJECTIVES: Restless legs syndrome (RLS) affects 2 to 15% of the US population. Limited data exist on patient characteristics and charges associated with emergency department (ED) visits among patients with RLS. **METHODS:** Data from the 2007 Healthcare Cost and Utilization Project's Nationwide Emergency Department Sample were used. Patients were selected for inclusion if they had a diagnosis of RLS (ICD-9-CM code 333.94). Study measures included patient demographics and charges associated with the ED visit. Study measures were reported separately for patients with a primary versus secondary RLS diagnosis. Among patients with a secondary RLS diagnosis, the most common primary diagnoses were reported. **RESULTS:** A total of 6133 patients with a primary RLS diagnosis and 140,931 patients with a secondary RLS diagnosis were identified. Common primary diagnoses among patients with a secondary RLS diagnosis included respiratory symptoms (7.0%), general symptoms (4.6%), and pneumonia (3.7%). Mean (Std. Err.) age was 54.5 (0.6) years among patients with a primary diagnosis and 64.0 (0.3) years among patients with a secondary diagnosis. In both cohorts, over two-thirds of patients were female, the most common geographic regions were the South and Midwest, and Medicare was the most common primary payer (41.0% of patients with a primary diagnosis and 59.3% of patients with a secondary diagnosis). Over 90% of patients with a primary diagnosis had a routine discharge compared to only 26.6% of patients with a secondary diagnosis, and most patients with a secondary diagnosis were admitted to the facility as an inpatient. Mean (Std. Err.) charges were $816 ($48) for patients with a primary diagnosis and $2,043 ($62) for patients with a secondary diagnosis. **CONCLUSIONS:** This nationally representative study suggests that patients admitted to the ED with RLS accrue substantial costs during their visit. Further research is needed to more fully assess the total economic burden of the disease.

PND16

MODELING THE CLINICAL AND ECONOMIC IMPLICATIONS OF GALANTAMINE IN THE TREATMENT OF MILD TO MODERATE ALZHEIMER'S DISEASE IN GERMANY

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OBJECTIVES: A reimbursement policy issued by the Federal Joint Committee in Germany to reassess the benefit of cholinesterase inhibitors every six months in order to receive continued coverage by the Statutory Health Insurance triggered an additional need to periodically assess the cost-benefit of galantamine in the treatment of mild-to-moderate Alzheimer's disease (AD). An economic model specifically designed for the purposes of such an assessment was developed using the most up-to-date IQWiG guidelines for cost-benefit assessment. **METHODS:** The model uses a discrete event simulation to predict the course of AD through changes in cognition, behavioral disturbance, and function over time, and compare the costs and benefits of galantamine versus no-drug treatment and ginkgo biloba. Clinical data were mainly derived from analyses of pooled data from clinical trials. Epidemiological and cost data were obtained from literature and public data sources. Costs (2009 €) from the perspective of the German Statutory Health Insurance were used. Both costs and benefits were discounted at 5%. Sensitivity analyses were performed to assess the robustness of the model outcomes. **RESULTS:** Over a 10-year period, galantamine on average delays time to severe stage of the disease by 3.57 and 3.36 months, compared to no-drug treatment and ginkgo biloba, respectively. Galantamine also reduces time spent institutionalized by 2.34 and 2.21 months, compared to no-drug treatment and ginkgo biloba, respectively. The use of galantamine is projected to yield net savings of €3,978 and €3,972 per patient compared to respective treatments. **CONCLUSIONS:** Our analyses suggest that compared to no-drug treatment and ginkgo biloba, treatment with galantamine not only improves clinical benefits, but also achieves savings in health care costs associated with care for patients with mild-to-moderate AD in Germany.

PND17

MEMANTINE DELAYS THE ADMISSION OF ALZHEIMER'S DISEASE PATIENTS TO NURSING HOME: COST-EFFECTIVENESS ANALYSIS IN FRANCE

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OBJECTIVES: To evaluate in the French setting the cost-effectiveness of memantine as adjunct therapy to Cholinesterase inhibitors (ChEI) compared to ChEI monotherapy in Alzheimer's disease (AD) patients. **METHODS:** A cost-effectiveness analysis employed a 3-state Markov model ("non-institutionalized," "institutionalized" and "dead") and compared the treatment alternatives in terms of time to nursing home admission, Quality Adjusted Life-years (QALYs), and costs over a 7-year time horizon. Annual transition probabilities between states were derived from two observational cohort studies: Lopez et al 2009 (US) for institutionalization probabilities and Helmer et al 2001 (FR) for death probabilities. Costs were valued from health care system and societal perspectives, and included cost of AD medications (French National

Health Insurance database, 2009), costs of care in community and in institution (French National Assembly on AD management, report 2005). Results were reported in EUR 2009. Health-related utilities were obtained from preceding published economic evaluations in AD (Getsios et al 2001). Costs and QALYs were discounted at annual rates of 0% (base-case analysis), 3% and 5%. Deterministic and probabilistic sensitivity analyses were carried out to test the robustness of model assumptions. **RESULTS:** Over the seven-year time horizon, patients treated with ChEI monotherapy spent on average 41.6 months before institutionalization. Overall costs were €72,469 (health care system perspective) or €89,735 (societal perspective). QALYs were estimated at 2.36. Memantine as adjunct therapy to ChEI was associated with a longer time to nursing home of 8.9 months, QALYs gains of 0.19 and a cost saving of €5900 (health care system perspective) or €2200 (societal perspective), i.e. a dominant treatment scenario versus ChEI monotherapy. **CONCLUSIONS:** This economic evaluation suggest that, from both a health care system and a societal perspective, memantine as adjunct therapy to ChEI is a cost-effective strategy in the management of AD patients compared with ChEI monotherapy.

PND18

48-HOUR INFUSION OF METHYLPREDNISOLONE IS A COST-EFFECTIVE INTERVENTION FOR TRAUMATIC SPINAL CORD INJURY

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OBJECTIVES: Methylprednisolone sodium succinate (MP) is an acute therapeutic option for traumatic spinal cord injury (SCI). a pivotal multicentre randomized control trial reported modest functional improvements and increased clinical complications associated with an extended dose regimen of MP for 48 hours (48h-MP) versus a limited dose regimen of MP for 24 hours (24h-MP), resulting in clinical ambiguity between 48h-MP and 24h-MP. Concerning the health care burden imposed by this devastating form of neurotrauma, an economic assessment comparing the benefits either MP regimen imparts has never been reported. We performed a cost-effectiveness analysis (CEA) of 48h-MP compared with 24h-MP to determine their impact on direct health care costs for this patient population. **METHODS:** A decision tree model, incorporating motor improvement and complication frequencies reported by the Third National Acute Spinal Cord Injury Study and utility scores (QALYs) obtained from an Australian cohort, measured outcomes and effects at 6 and 12 months post-injury. Survival data, direct health care expenditures and complication costs associated with SCI and MP intervention were obtained from published epidemiological and survey data. CEA was performed from the health care payer's perspective, discounted at a rate of 4% annually with a lifetime horizon. Distributions of the incremental cost-effectiveness ratio between the interventions were determined by Monte Carlo simulation. The model was validated with sensitivity analyses by varying costs and outcome comparators. **RESULTS:** As a result, 48h-MP dominates 24h-MP, providing higher QALYs at lower costs. The lower costs associated with 48h-MP intervention was $35,703 per patient lifecycle. Earlier motor improvement maintained at 1-year post-injury was a key variable favouring 48h-MP intervention, despite complications associated with this dosing regimen. **CONCLUSIONS:** To conclude, 48h-MP is the cost-effective intervention for SCI in comparison to 24h-MP, wherein the former results in modestly improved motor function, an effect which is maintained up to at least 1-year post-injury.

PND19

A LONG-TERM COST-EFFECTIVENESS MARKOV MODEL COMPARING DISEASE MODIFYING TREATMENTS IN PATIENTS WITH RELAPSING REMITTING MULTIPLE SCLEROSIS IN GERMANY

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OBJECTIVES: To conduct a German economic evaluation of natalizumab compared to other disease modifying drugs (DMD) in relapsing-remitting Multiple Sclerosis (MS) from a societal perspective. **METHODS:** A Markov model was designed to compare costs and outcomes of Natalizumab (Nb), other DMD (interferon-beta, glatiramer acetate) and best supportive care (BSC). The expanded disability status scale (EDSS) and the line of treatment were used to define the distinctive Markov States. Transition probabilities for progression, treatment switches and withdrawals were derived from clinical studies and literature. German real-life treatment data of MS-patients under DMD were collected retrospectively (N = 554) and used to validate assumptions and conduct sensitivity analyses. Cost data and quality of life estimates were taken from a European burden of MS study. a time horizon of 30 years and annual discount rates of 3% for costs and outcomes were chosen. **RESULTS:** Treatment with Nb resulted in 8.13 avoided relapses over 30 years, and in 2.36 avoided relapses under other DMD. After 30 years, the proportion of surviving patients at a low state of disease (incl. EDSS 4) was 59% for the Nb group, 31% for the other DMD and 8% for patients in the BSC group. The average MS related costs over 30 years were estimated at €847,160 for Nb, €816,139 for other DMD, and €627,701 for BSC. Cost per quality adjusted life-year (QALY) was €60,938 for Nb, €64,481 for other DMD and €53,911 for BSC. The incremental cost-effectiveness of Nb compared to other DMD was €24,919 per QALY. **CONCLUSIONS:** MS is a resource intense disease due to its chronic course and its severe impact on patients' daily life. Long term analysis suggests that even treatment without DMD is expensive and leads to considerable inferior clinical outcomes. Treatment with DMD improves the situation of patients, with Natalizumab showing the highest efficacy and best cost-effectiveness ratio.

PND20

IS ROPINIROLE-PROLONGED RELEASE A COST-SAVING TREATMENT OPTION IN PARKINSON'S DISEASE?

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OBJECTIVES: Parkinson's Disease (PD) is both a chronic and progressive neurodegenerative disorder. a 24-hour prolonged release tablet (PR) of the dopamine agonist ropinirole was introduced next to three daily doses of ropinirole immediate release (IR). a randomized controlled trial (PREPARED) was conducted, comparing ropinirole-IR with ropinirole-PR. Ropinirole-PR significantly improved the off-time and this analysis assesses the costs-effectiveness of the ropinirole-PR in PD patients who are not adequately controlled on L-dopa compated to ropinirole-IR. **METHODS:** A Markov-health-state-transition model was used with health states combining off-time ≤25% and >25% per day, Hoehn & Yahr stages 2–5 and problematic dyskinesias. Time horizons are 5 years and lifelong. Costs and effects were discounted by 4% and 1,5% respectively. Healthcare perspective was taken, covering direct costs related to medication, consults, nursing and patient care including informal care, based on an ongoing Dutch observational study in PD (IMPACT study). Clinical outcomes from the PREPARED-trial are extrapolated based on literature assumptions. Results are presented as incremental costs and QALY's gained. Both univariate and probabilistic sensitivity analyses (PSA) were performed. **RESULTS:** Ropinirole-PR was associated with lower L-dopa use, less off-time and less problematic dyskinesias. This resulted in incremental QALY gains of 0.125 and 0.336 over respectively 5 years and lifetime. The health care costs per H&Y-stage increased with disease severity and amounted €916, €1,492, €11,295 and €11.295 for stage 2 to 5 over 6 months. Treatment with ropinirole-PR was more costly than ropinirole-IR with a difference of €7.266 over 5 years and €17.773 over lifetime. Treatment with ropinirole-PR however reduced medical costs by €8,059 over 5 years and €69,532 over lifetime compared with ropinirol-IR, mainly due to reduced dyskinesia occurrence. Sensitivity analysis confirmed the robustness of the model. **CONCLUSIONS:** Patient-functioning and quality of life were improved with ropinirole-PR realizing cost-savings to the health care budget as compared to treatment with ropinirole-IR.

PND21

COST-EFFECTIVENESS OF TRANSDERMAL PATCH (ROTIGOTINE) IN PATIENTS WITH PARKINSON DISEASE IN MEXICO

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BACKGROUND: Parkinson's Disease (PD) is a central nervous system disorder caused by progressive deterioration of brain areas that produce dopamine. Oral dopaminergic therapies control the symptoms of the disease, but these require three or more times daily doses, so it is associated with poor compliance or adherence, which affects the overall efficacy and costs in health. **OBJECTIVES:** To analyze the cost-effectiveness of rotigotine versus pramipexole in patients with PD in Mexico. **METHODS:** We conducted an economic evaluation. The alternatives to compare were rotigotine 4, 6, 8 and 12 mg administered once daily versus pramipexole 3 mg/d and another scenario versus pramipexole 4.5 mg/d. The perspective is the Mexican Social Security Institute. The model included the cost of drug acquisition and management of adverse events (AE) for a 22 weeks period. The measure of efficacy was compliance or adherence to treatment, as a direct comparison study of rotigotine versus pramipexole demonstrated non-inferiority between the two alternatives. **RESULTS:** The compliance rate for rotigotine was 81% vs. 61% pramipexole. The costs were US$748, US$920, US$1113 and US$1701 for rotigotine 4, 6, 8 and 12 mg/d respectively, compared with US$670 and US$967 for pramipexole 3 and 4.5 mg/d. The cost per successfully treated patient was lower for rotigotine 4, 6 and 8 mg/d (US$923, US$1 136 and US$1374, respectively) than with pramipexole 4.5 mg/d (US$1585). Rotigotine 4, 6, 8 and 12 mg/d were found to be a highly cost-effective strategy compared with pramipexole 3 and 4.5 mg/d, according to WHO criteria. **CONCLUSIONS:** The results of this analysis suggest that the use of rotigotine in patients with PD, represents a highly cost-effective strategy or cost saving for the public health institutions in Mexico. Rotigotine is an innovative alternative for easy administration (transdermal).

PND22

COST-EFFECTIVENESS ANALYSIS COMPARING BRIDION® (SUGAMMADEX) WITH NEOSTIGMIN AND SPONTANEOUS RECOVERY IN THE REVERSAL OF NEUROMUSCULAR BLOCKADE INDUCED BY ROCURONIUM/VECURONIUM

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OBJECTIVES: This study aimed to compare the cost-effectiveness (CE) of Bridion® (sugammadex) with neostigmine and spontaneous recovery (SR) approach in the reversal of neuromuscular blockade (NMB) induced by rocuronium/vecuronium, during anesthesia. **METHODS:** CE analysis (CEA) was performed by solving back the decision tree that included pathways starting with residual NMB and followed by hypoxia and pulmonary complications defined as "aspiration, atelectasis and/or pneumonia" in patients, in whom NMB was induced by rocuronium/vecuronium. Bridion was compared with neostigmine and SR approach. Primary analysis parameters that